What is claimed is:

1. An image encoding apparatus for encoding an image signal according to a JPEG2000 standard, comprising:

a wavelet converter which acquires a plurality of conversion coefficients by performing wavelet conversion on said image signal;

5   a modeling unit which generates a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet converter; and

an arithmetic encoder which performs arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling unit,

10   wherein said arithmetic encoder discriminates whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executes CODEMPS in a case where it is discriminated that said symbol is an MPS and executes either CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS.

2. The image encoding apparatus according to claim 1, wherein in a case where it is discriminated that said symbol is an LPS, said arithmetic encoder compares a probability of occurrence of an LPS corresponding to a current context with a predetermined threshold value, executes said CODEMPS in a case where said probability of occurrence is greater

5   than said threshold value and executes said CODELPS in a case where said probability of occurrence is not greater than said threshold value.

3. The image encoding apparatus according to claim 2, wherein in a case where said probability of occurrence is greater than said threshold value, said arithmetic encoder changes a value of said symbol and executes said CODEMPS.

4. The image encoding apparatus according to claim 3, wherein said modeling unit classifies said plurality of conversion coefficients to a plurality of bit planes and classifies said plurality of conversion coefficients to a plurality of encoding passes to thereby

generate said plurality of symbols,

5   said threshold value is independently set for each of said plurality of encoding

passes, and

          said arithmetic encoder uses different threshold values for said plurality of encoding

passes respectively.

5. The image encoding apparatus according to claim 3, wherein said wavelet

converter divides an image represented by said image signal into a plurality of sub bands by

wavelet conversion,

          said threshold value is independently set for each of said plurality of sub bands, and

5   said arithmetic encoder uses different threshold values for said plurality of sub

bands respectively.

6. The image encoding apparatus according to claim 5, wherein that threshold

value which is associated with a sub band LL in said plurality of sub bands is set larger than

those threshold values which are associated with the other sub bands and that threshold

value which is associated with a sub band HH is set smaller than those threshold values

5   which are associated with the other sub bands.

7. The image encoding apparatus according to claim 6, wherein said threshold

value associated with said sub band LL is set larger than a value said probability of

occurrence can take.

8. The image encoding apparatus according to claim 3, wherein in a case where it

is discriminated that said symbol is an LPS, said arithmetic encoder discriminates whether

or not an encoding pass to be processed is a degrading pass to degrade an image quality as a

result of execution of said CODEMPS in a case where said symbol is an LPS, executes said

5   CODELPS in a case where it is discriminated that said encoding pass is said degrading pass,

and compares said probability of occurrence with said threshold value in a case where it is

discriminated that said encoding pass is not said degrading pass.

9. An image encoding method of encoding an image signal according to a

JPEG2000 standard, comprising:

acquiring a plurality of conversion coefficients by performing wavelet conversion on said image signal;

5   generating a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet conversion; and

performing arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling process,

10   wherein said performing arithmetic encoding includes discriminating whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executing CODEMPS in a case where it is discriminated that said symbol is an MPS and executing either CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS.

10. The image encoding method according to claim 9, wherein said executing either CODEMPS or CODELPS includes:

comparing a probability of occurrence of an LPS corresponding to a current context with a predetermined threshold value;

5   executing said CODEMPS in a case where said probability of occurrence is greater than said threshold value; and

executing said CODELPS in a case where said probability of occurrence is not greater than said threshold value.

11. The image encoding method according to claim 10, wherein said executing either CODEMPS or CODELPS further includes changing a value of said symbol in a case where said probability of occurrence is greater than said threshold value.

12. The image encoding method according to claim 11, wherein said generating said plurality of symbols and said plurality of contexts includes classifying said plurality of conversion coefficients to a plurality of bit planes and classifying said plurality of

conversion coefficients to a plurality of encoding passes to thereby generate said plurality
of symbols,

said threshold value is independently set for each of said plurality of encoding
passes, and

said performing arithmetic encoding includes using different threshold values for
said plurality of encoding passes respectively.

13. The image encoding method according to claim 11, wherein said acquiring said
plurality of conversion coefficients includes dividing an image represented by said image
signal into a plurality of sub bands by wavelet conversion,

said threshold value is independently set for each of said plurality of sub bands, and

said performing arithmetic encoding includes using different threshold values for
said plurality of sub bands respectively.

14. The image encoding method according to claim 13, wherein that threshold
value which is associated with a sub band LL in said plurality of sub bands is set larger than
those threshold values which are associated with the other sub bands and that threshold
value which is associated with a sub band HH is set smaller than those threshold values
which are associated with the other sub bands.

15. The image encoding method according to claim 14, wherein said threshold
value associated with said sub band LL is set larger than a value said probability of
occurrence can take.

16. The image encoding method according to claim 11, wherein said performing
arithmetic encoding further includes discriminating whether or not an encoding pass to be
processed is a degrading pass to degrade an image quality as a result of execution of said
CODEMPS in a case where said symbol is an LPS, in a case where it is discriminated that
said symbol is an LPS, and executing said CODELPS in a case where it is discriminated
that said encoding pass is said degrading pass, and

said comparing said probability of occurrence with said threshold value includes

comparing said probability of occurrence with said threshold value in a case where it is discriminated that said encoding pass to be processed is not said degrading pass.

17. A program for allowing a computer to function as an image encoding apparatus for encoding an image signal according to a JPEG2000 standard, which comprises:

a wavelet converter which acquires a plurality of conversion coefficients by performing wavelet conversion on said image signal;

5   a modeling unit which generates a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet converter; and

an arithmetic encoder which performs arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling unit,

10   wherein said arithmetic encoder discriminates whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executes CODEMPS in a case where it is discriminated that said symbol is an MPS and executes either CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS.